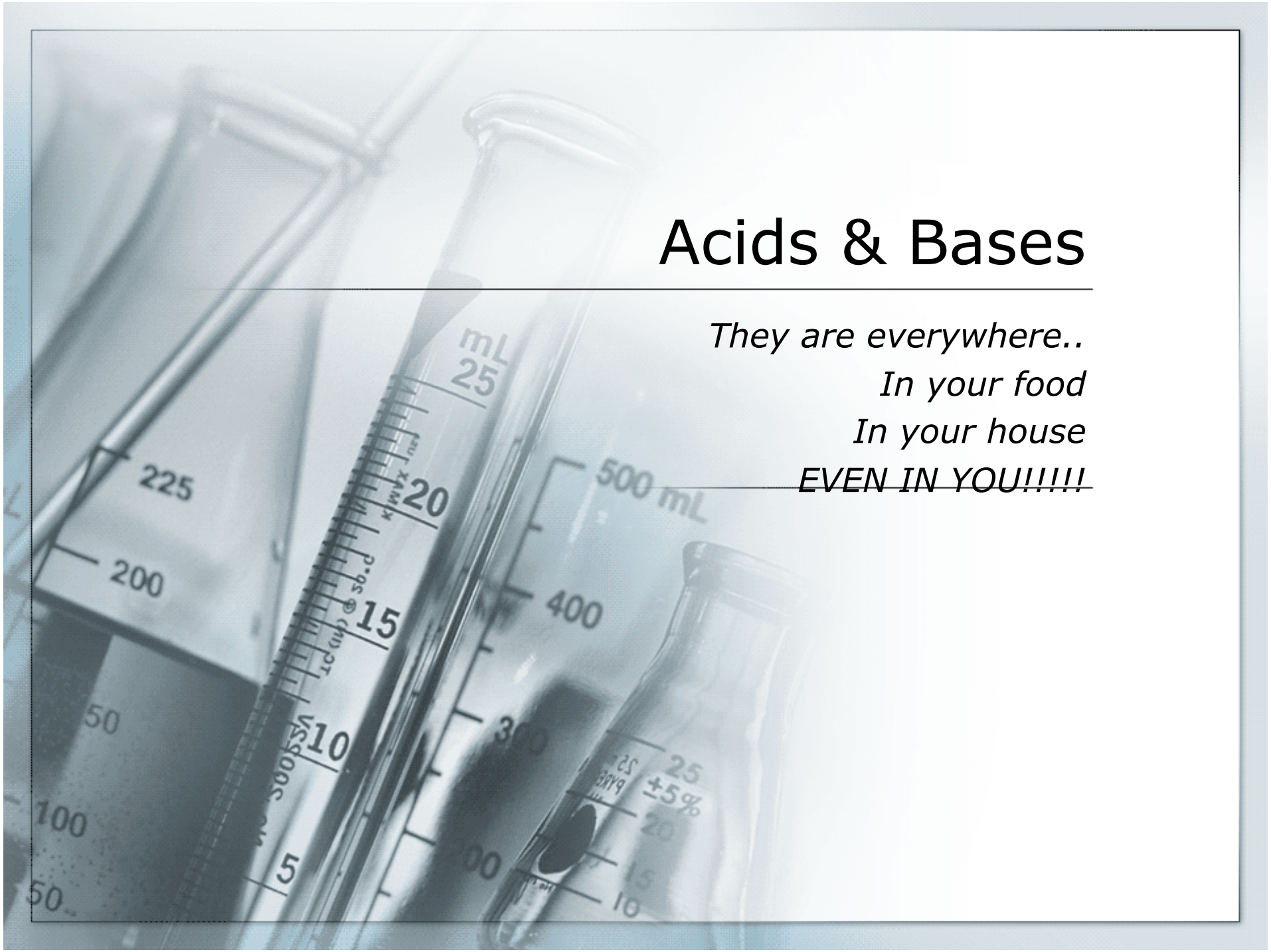


Acids & Bases

They are everywhere..

In your food

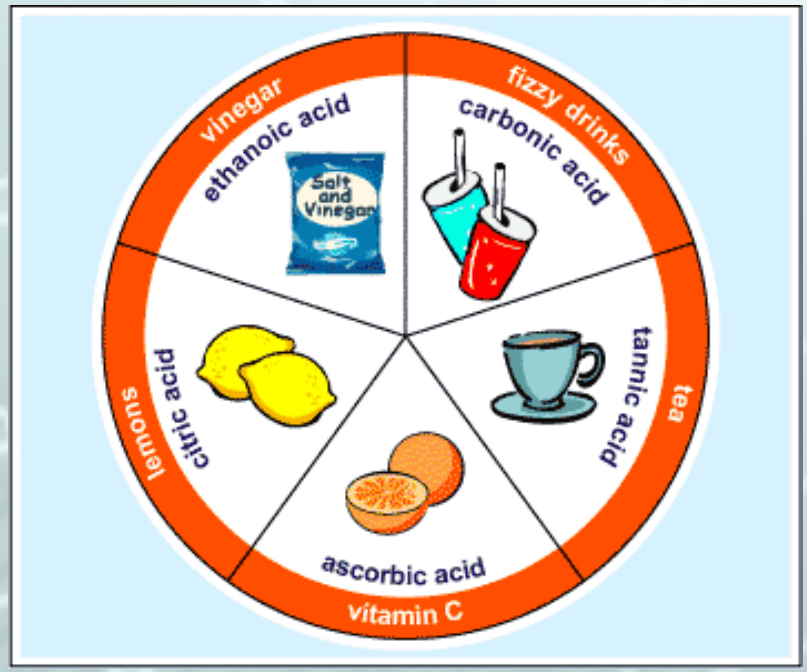
In your house

EVEN IN YOU!!!!!

What is an acid?

- An acid is a solution that has an excess of H+ ions. It comes from the Latin word acidus that means "sharp" or "sour".
- The more H + ions, the more acidic the solution.

Properties of an Acid



Picture from BBC Revision Bites
http://www.bbc.co.uk/schools/ks3bitesize/science/chemistry/acids_bases_1.shtml

- Tastes Sour
- Conduct Electricity
- Corrosive, which means they break down certain substances. Many acids can corrode fabric, skin,and paper
- Some acids react strongly with metals
- Turns blue litmus paper red

Uses of Acids

Acids

- Acetic Acid = Vinegar
- Citric Acid = lemons, limes, & oranges. It is in many sour candies such as lemonhead & sour patch.
- Ascorbic acid = Vitamin C which your body needs to function.
- Sulfuric acid is used in the production of fertilizers, steel, paints, and plastics.
- Car batteries

What is a base?

- A base is a solution that has an excess of OH- ions.
- Another word for base is alkali.
- **Bases** are substances that can accept hydrogen ions

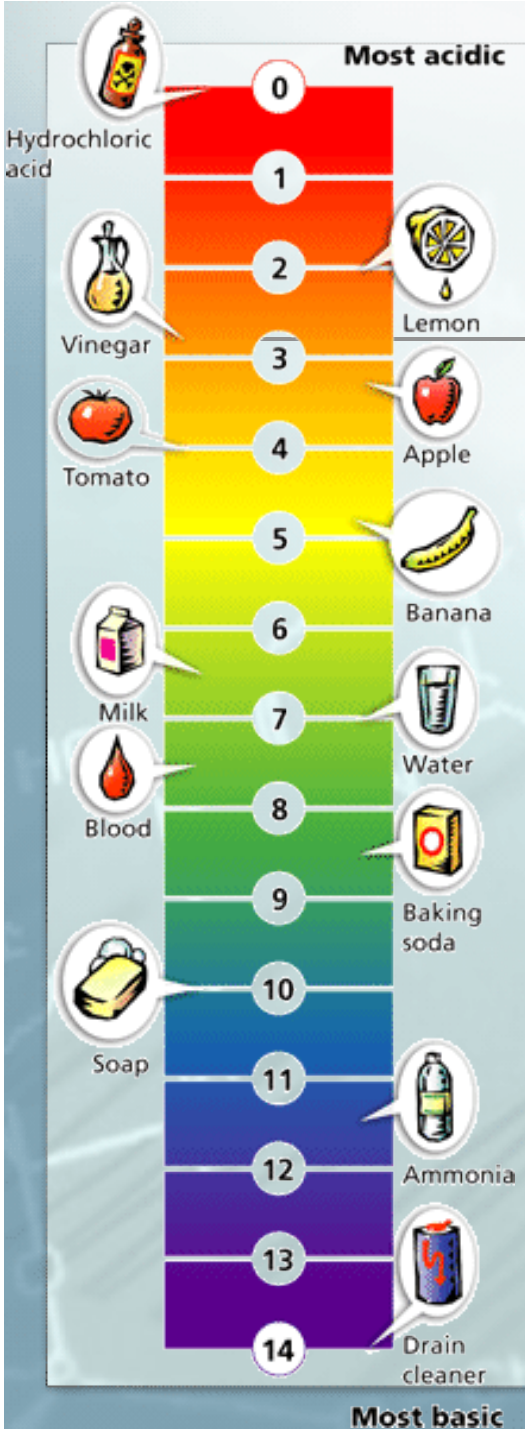
Properties of a Base

Bases

- Feel Slippery
- Taste Bitter
- Corrosive
- Can conduct electricity. (Think alkaline batteries.)
- Do not react with metals.
- Turns red litmus paper blue.

Uses of Bases

- Bases give soaps, ammonia, and many other cleaning products some of their useful properties.
- The OH- ions interact strongly with certain substances, such as dirt and grease.
- Chalk and oven cleaner are examples of familiar products that contain bases.
- Your blood is a basic solution.

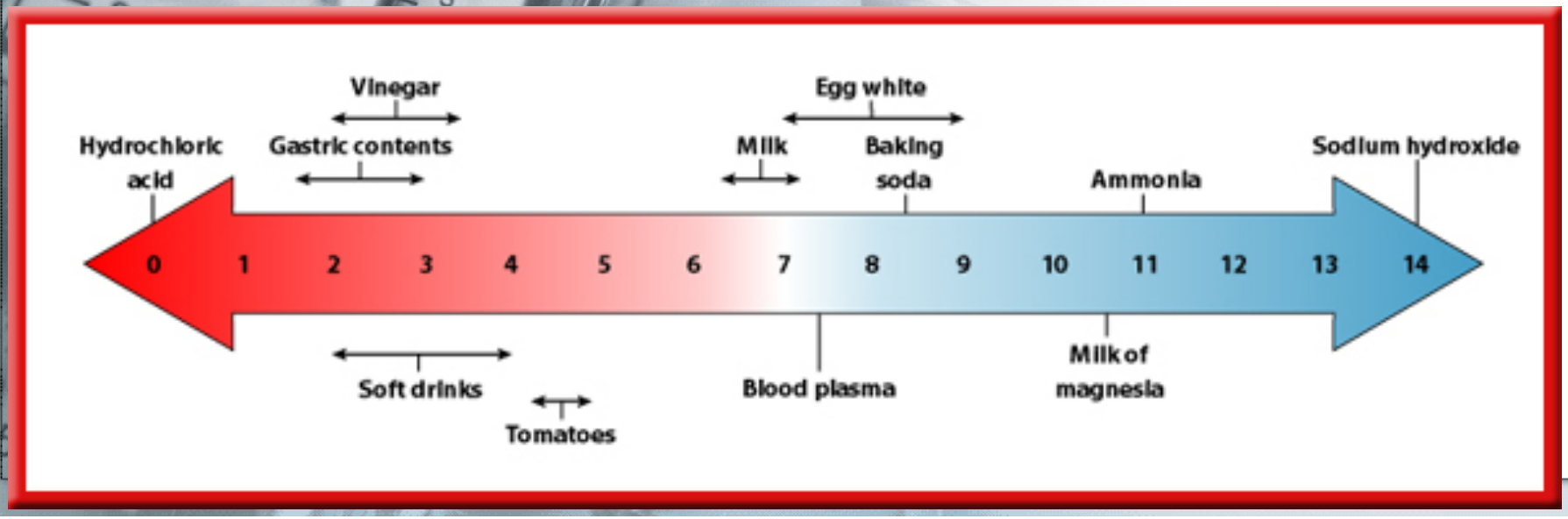


pH Scale

- **pH** is a measure of how acidic or basic a solution is.
- The pH scale ranges from 0 to 14.
- Acidic solutions have pH values below 7
- A solution with a pH of 0 is very acidic.
- A solution with a pH of 7 is neutral.
- Pure water has a pH of 7.
- Basic solutions have pH values above 7.

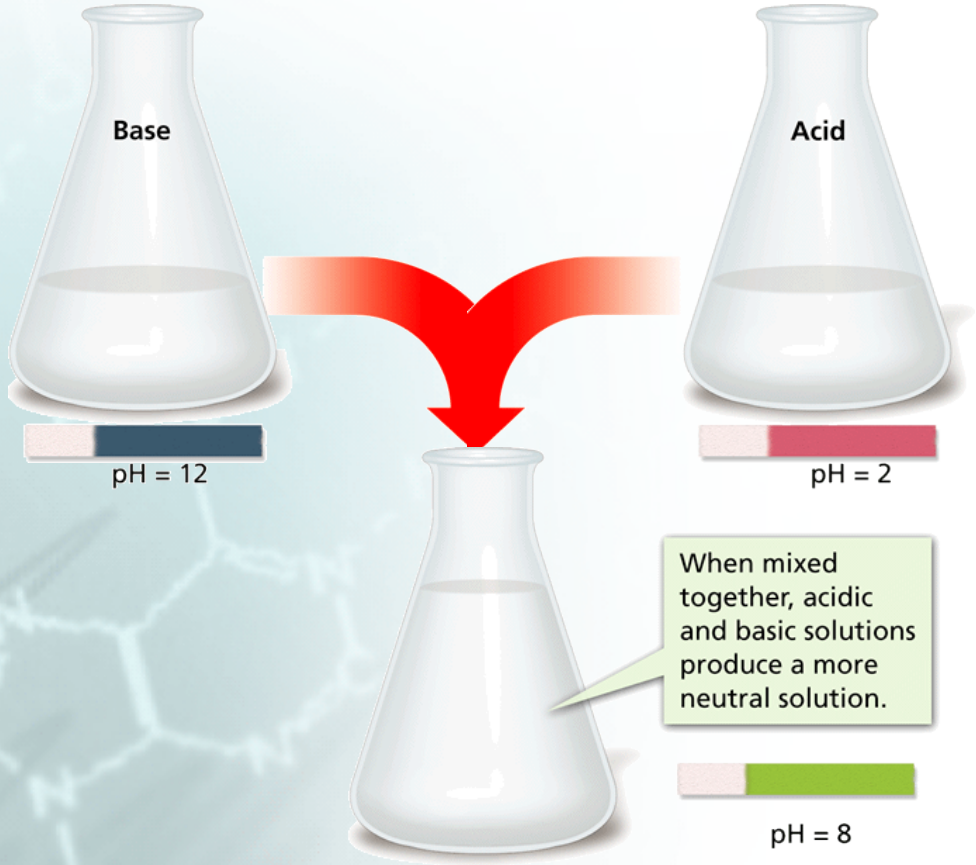
pH Scale

- A change of 1 pH unit represents a tenfold change in the acidity of the solution.
- For example, if one solution has a pH of 1 and a second solution has a pH of 2, the first solution is not twice as acidic as the second—it is ten times more acidic.



Acid – Base Reactions

- A reaction between an acid and a base is called *neutralization*. An acid-base mixture is not as acidic or basic as the individual starting solutions.



Acid – Base reactions

Common Salts	
Salt	**Uses**
Sodium chloride $NaCl$	Food flavoring; food preservative
Potassium iodide KI	Additive in "iodized" salt that prevents iodine deficiency
Calcium chloride $CaCl_2$	De-icer for roads and walkways
Potassium chloride KCl	Salt substitute in foods
Calcium carbonate $CaCO_3$	Found in limestone and seashells
Ammonium nitrate NH_4NO_3	Fertilizer; active ingredient in cold packs

Each salt listed in this table can be formed by the reaction between an acid and a base.